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File Code: 3420 **Date:** December 7, 2006
Route To:

Subject: Bark Beetle Activity in Recreation Sites on the Black Mesa RD, Apache-Sitgreaves NFs (blackmesard)

To: District Ranger, Black Mesa RD

Our staff was requested to assess bark beetle activity in developed recreation sites on the Black Mesa RD, Apache-Sitgreaves NFs, by Gayle Richardson, District Silviculturalist. On 31 August 2006 I surveyed recreation sites on the District for bark beetle activity and evaluated previous prevention and suppression treatments that have occurred at these sites over the last four years. I describe in this report what bark beetle activity was observed in these areas, summarize the effectiveness of preventive spray treatments, and make recommendations to minimize bark beetle impacts in the future.

The District has recently completed thinning treatments at many of the recreation and administrative sites (***Figure 1***). These treatments have improved growing conditions for residual trees and will reduce the long-term susceptibility of these areas to bark beetle attack. To provide short-term protection against bark beetle attack, Forest Health Protection funds have been used to apply single tree protection treatments (Sevin SL or Carbaryl 4L preventative spray) on selected high-value trees. In 2006, 1,044 trees were sprayed at the Black Mesa RD compound, Canyon Point Campground, and the Tall Timbers Park.

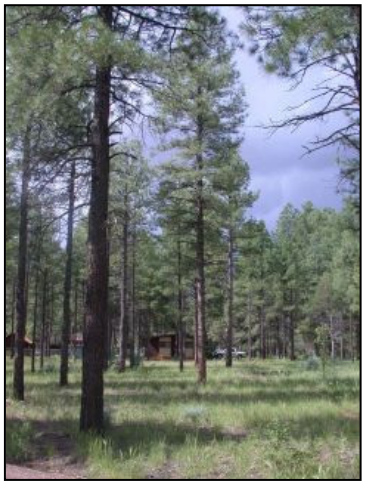

Figure 1. *Residual stand of ponderosa pine following thinning treatment at the Black Mesa RD compound.*

On August 31, 2006, I examined several developed recreation and administrative sites across the Black Mesa RD for bark beetle activity. My surveys of recreation sites consisted of walkthroughs looking for fading trees, pitch tubes, and boring dust. It is important to note that a more intensive survey may find additional infested trees and additional trees may have become infested after my survey was completed. Therefore, the numbers of infested trees reported here should not be considered absolute. In general, bark beetle activity at all sites was lower in 2006 than in previous years. A brief summary is provided for each site surveyed.

Black Mesa District Office – Five ponderosa pine trees were attacked by bark beetles during 2006 within the immediate area of the compound. These trees were attacked by western pine beetle and *Ips* beetles.

One pocket of tree mortality behind the # 9 housing site should be considered a hazard as the dead trees are adjacent to power lines and a trailer (***Figure 2***).

In addition, approximately five ponderosa pine trees had been attacked by bark beetles in the prescribed burn area between the District Office and the Tall Timbers Park.

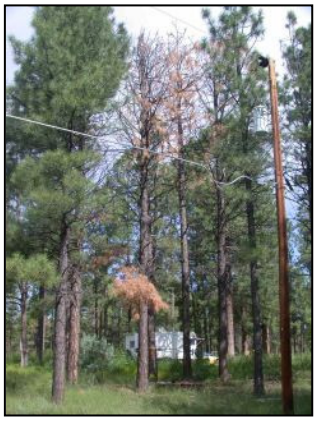

Figure 2. *Bark beetle-caused pine mortality near housing and power line at Black Mesa RD compound.*

Tall Timbers Park – No current bark beetle activity was observed within the boundaries of the park.

Camp Shadow Pines & Black Mesa Work Center – No current infested trees were found at the Camp or Work Center.

Canyon Point Campground, Large Group Area, and Small Group Area – Twelve current infested and 17 previously infested (attacked late 2005 or early 2006) ponderosa pine trees were observed within this large developed recreation site. Several of these trees were large yellow pines attacked by western pine beetle (***Figure 3***). A limited amount of additional current infested trees and recent mortality were observed adjacent to the recreation site in areas burned during the Rodeo-Chediski Fire.

Rim Campground – No new mortality was found at this recreation site.

Gentry Lookout Campground – No new mortality was found at this recreation site.

Figure 3. *Large diameter ponderosa pine killed by western pine beetle at Canyon Point Campground.*

Sinkhole Campground – No new mortality was found at this recreation site.

Woods Canyon Group Area – No new mortality was found at this recreation site.

Aspen Campground – Six currently infested and 12 previously infested (attacked during 2005) were seen within the immediate area of this large recreation site. Most of the large trees that had been attacked had been previously damaged by lightning strikes.

Crook Campground – No new mortality was found at this recreation site.

Mogollon Campground – No new mortality was found at this

recreation site.

Spillway Campground, Spillway Group Area and Amphitheater – No new pine mortality was observed within this recreation site.

Black Canyon Rim Campground – No new mortality was found at this recreation site.

Effectiveness of preventative sprays for bark beetles in recreation sites

The Black Mesa RD awarded a contract to Praying Mantis Termite & Pest Control to spray 1,044 high value trees at the Black Mesa RD compound, Canyon Point Campground and Tall Timbers Park. Trees were sprayed with carbaryl-based products, Sevin SL and Carbaryl 4L, during April 2006. None of the trees sprayed with preventative insecticides were successfully attacked by bark beetles despite moderate beetle pressure. In a couple cases at Canyon Point CG spray trees were directly adjacent to successfully attacked non-spray trees. Thus, as in previous years, the single tree protection treatments were very effective at preventing bark beetles from successfully attacking these high value trees.

While spraying was being conducted, we (Black Mesa RD personnel and myself) put out water-sensitive spray cards to monitor drift of spray material. Cards were attached to holders that were placed in 3 radiating spokes downwind from the base of a spray tree at 5, 50, and 100 feet. Cards were collected after spraying and pictures taken (***Figure 4***). The vast majority of spray material was deposited on the target tree or less than 50 feet. Virtually no material was detected at 100 feet when wind speed was less than 7 mph at ground level.

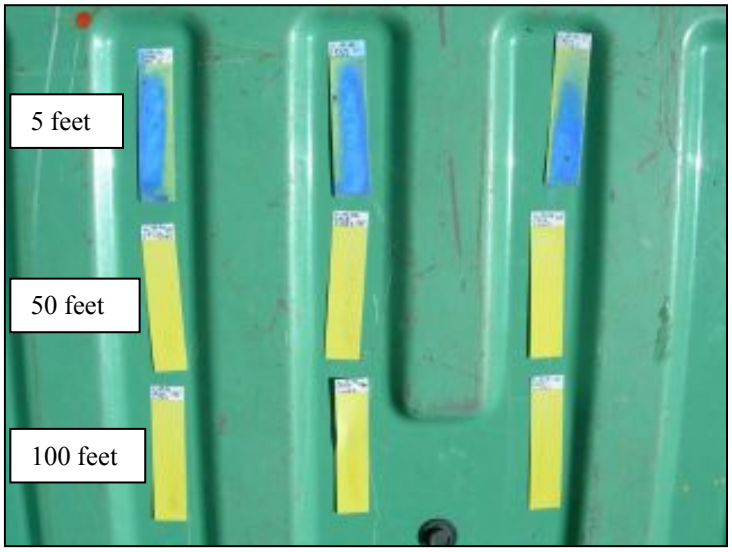

Figure 4. Water sensitive spray cards used to monitor drift of preventative spray treatments on the Black Mesa RD. Blue color indicates spray droplets contacting the card.

Based on personal observations made during spray applications, the contractors (Praying Mantis Termite & Pest Control and Rim Country Applicators) were very receptive to suggestions and recommendations District personnel provided regarding the treatment of selected trees. Furthermore, they were diligent in post-application washing off picnic tables and grills within the campground (***Figure 5***).

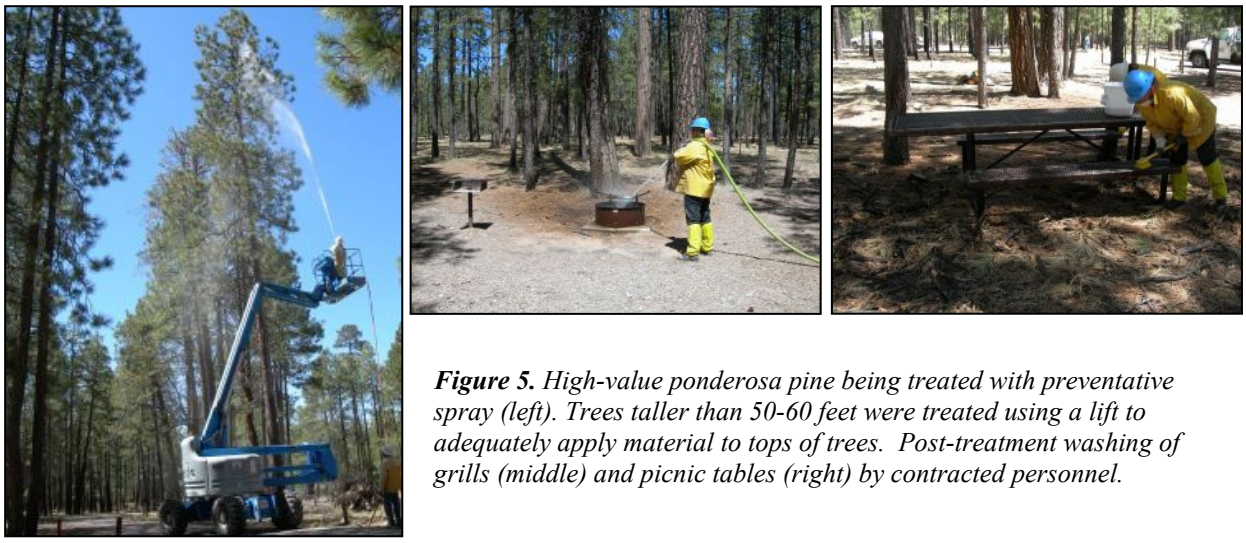

Figure 5. *High-value ponderosa pine being treated with preventative spray (left). Trees taller than 50-60 feet were treated using a lift to adequately apply material to tops of trees. Post-treatment washing of grills (middle) and picnic tables (right) by contracted personnel.*

Recommendations

Based on the current level of bark beetle activity within the immediate area and adjacent to the Black Mesa RD administrative site and Tall Timbers Park, beetle activity has returned to relatively low levels. Because many trees at Canyon Point Campground were damaged by the Rodeo-Chediski Fire, bark beetle activity continues to be slightly higher there than at other sites. However, based on the reduction in bark beetle activity across the District, I do not feel that spraying of high value trees is necessary in 2007.

In the short-term, prompt removal of currently infested trees will help to reduce the immediate local population of beetles. It is recommended that the infested trees be removed yet this winter before the brood completes their development and adult beetles emerge in the spring. Felling of infested trees will not kill developing brood; infested trees must either be removed from the site or treated on site.

If you have any questions regarding my assessment of current bark beetle activities within the project area, its potential effect on residual standing trees, or my recommendations, please let me know. I can be reached at (928) 556-2074.

/s/ Joel D. McMillin
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